A Disciplined Approach to Implementation of Evidence-Based Practices Decreases ICU and Hospital Length of Stay in Traumatically Injured Patients

John P. Kepros MD, MBA

Objectives

• Outline the performance improvement format used over the last 7 years by the Sparrow trauma service line
• Characterize the depth and extent of the commitment to evidence based practices in our trauma service line
• Explicate the interaction identified between process and outcome in our service line

Trauma Overview and Perspective

Ancient Medicine

Splenectomy

Cook County-1966-First Trauma Center
Sparrow Trauma Performance Improvement

Formula Trauma™
**Sparrow Trauma Service**

**ACS Requirements**

**Quality Care**

**Sparrow Trauma Service**

**Maria Maier**

**Sparrow Trauma Service Line Growth**

\[ y = 116.33x + 1489.9 \]

\[ R^2 = 0.9063 \]

\[ y = 139.26x + 824.47 \]

\[ R^2 = 0.9351 \]

**PATIENT SAFETY**

**Global Trigger Tool Shows That Adverse Events in Hospitals May Be Ten Times Greater Than Previously Measured**
“Small changes can produce big results... but the areas of highest leverage are often the least obvious.”

Peter Senge
The Fifth Discipline
What Distinguishes Top-Performing Hospitals in Acute Myocardial Infarction Mortality Rates? A Qualitative Study

John A. Cope, MD; Anna Salas, PhD; Emily Cheek, PhD; AMH; Irenide M. Thompson, MPH; David Beag, PhD; Henry H. Ting, MD; HSK; Carrie Decker, RN, PhD; Helen M. Haertig, AEC, SHS; and Elisabeth H. Bradley, PhD

Conclusion: High-performing hospitals were characterized by an organizational culture that supported efforts to improve AMI care across the hospital. Evidence-based protocols and processes, although important, may not be sufficient for achieving high hospital performance in care for patients with AMI.
Synergy of Patient Care, Research, and Education

Where we are on the innovation adoption curve

Innovators 2.5%  Early Adopters 13.5%  Early Majority 34%  Late Majority 14%  Laggards 16%

Toward a strategic view on safety

- Potential for improvement in the future with new therapies/new techniques
- Target for immediate improvement: Present performance

- Failing performance progresses over time
- Response to less injured patients
- Adaptive systems: improvement occurred
- Non-adaptive systems: limited conditions of activity, slow pace of change
- Poor systems: safety
Randomized trials
Cohort studies (prospective, retrospective)
Case control studies, case series
Expert opinion

Hierarchy of Evidence

If there is not high-level evidence, we should try to find several sources of supporting evidence.

FACT SHEET

- Computer Physician-Order Entry (CPOE): With CPOE systems, hospital staff enter medication orders via computer, reducing errors in prescribing by more than 50%.
- Evidence-Based Hospital Referral (EBHR): Healthcare providers should choose hospitals with extensive experience and the best results with certain high-risk surgeries and conditions. By referring patients needing certain complex medical procedures to hospitals offering the best survival odds based on scientifically valid criteria — such as the number of times a hospital performs these procedures each year or other process or outcomes data — research indicates that a patient’s risk of dying is reduced by up to 40%.
- ICU Physicians Staffing (IPS): Staffing ICUs with doctors who have special training in critical care medicine, called intensivists, has been shown to reduce the risk of patient death in the ICU by 40%.
- Leapfrog Safe Practices Score: The Leapfrog Safe Practices Score is based on the 50 practices recommended by the National Quality Forum’s 27 Safe Practices. The National Quality Forum’s endorsed 27 Safe Practices cover a range of practices that, if followed, would reduce the risk of harm in certain processes, systems or environments of care. Included in the 50 practices are the original 5 Leapfrog leaps. For the new leap, added in April 2019, hospitals’ progress on the remaining 27 safe practices will be assessed.

Chet Morrison MD

Paul Schneider MD

PROCESS
TRAUMA SYSTEMS

TRAMSA TEAM OVERSIGHT IMPROVES EFFICIENCY OF CARE AND AUGMENTS CLINICAL AND ECONOMIC OUTCOMES


Technical Knowledge

Adaptive Knowledge


TECHNICAL PROBLEMS VS. ADAPTIVE CHALLENGES

TRAUMA SYSTEMS

The New England Journal of Medicine

TRAMSA TEAM OVERSIGHT IMPROVES EFFICIENCY OF CARE AND AUGMENTS CLINICAL AND ECONOMIC OUTCOMES


Immediate vs. delayed fluid resuscitation for hypotensive patients with penetrating torso injuries


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Immediate vs. delayed fluid resuscitation for hypotensive patients with penetrating torso injuries

Effect of Reducing Interns’ Work Hours on Serious Medical Errors in Intensive Care Units

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Conclusions
Interns made substantially more serious medical errors when they worked frequent shifts of 24 hours or more than when they worked shorter shifts. Eliminating extended work shifts and reducing the number of hours interns work per week substantially reduced serious medical errors in the intensive care unit.

OUTCOME

Time to Take Health Delivery Research Seriously

Background: The National Institutes of Health (NIH) recently signaled its intention to increase emphasis on translational and implementation research in order to improve the delivery of health care. However, many investigators are skeptical about the utility of this approach.

Method: The authors of this article are members of aHealth Delivery Research Workshop held in May 2004 to discuss the current status of health delivery research. The workshop invited participants from various disciplines, including nursing, psychology, social sciences, medicine, and health services research.

Results: The workshop participants concluded that health delivery research is crucial for improving the quality of care and for understanding the factors that influence the effectiveness of health interventions. Despite this recognition, there is a lack of funding and support for health delivery research.

Conclusion: The NIH's focus on health delivery research is a timely and necessary development, and the workshop participants recommended increased investment in this area of research.
“...simplicity on the other side of complexity.”

Oliver Wendell Holmes

“Aimee Fitzpatrick

Mickie Kreft

Formula Trauma™

“The practice of trauma care based on the philosophical belief that a disciplined approach to evidence based practices along with a deep and thoughtful understanding of the systems of care will result in superior outcomes for injured patients”